

REMARKS

Applicants respectfully request reconsideration of this application in view of the foregoing amendment and following remarks.

Status of the Claims

Claims 14-18 are pending in this application and stand rejected. By this amendment, claims 14 and 18 are amended. Claims 15-17 have been canceled without prejudice or disclaimer. New claims 19 and 20 are added. No new matter has been introduced by this amendment.

Rejection under 35 U.S.C. §103

In paragraph three (3) of the Office Action, claims 14-18 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Publication No. 2001/0043275 to Hirota et al. ("Hirota") in view of U.S. Patent No. 7,046,290 to Nozaki ("Nozaki"), and in view of U.S. Patent No. 5,043,817 to Kinugasa et al. ("Kinugasa").

Claims 14 and 18 have been amended for further clarification. Amended claim 14 recites:

14 (*Currently Amended*): An imaging apparatus comprising:
an image pickup element having an imaging area in which a plurality of light receiving elements are two-dimensionally placed;
a zoom operation unit for a user to operate expansion or reduction of an image; and
a controller that controls to mix a first number of pixel signals in the image pickup element, which is output from the plurality of light receiving elements in a first area of the imaging area, in a case that a first magnification is set by said zoom operation unit, and to mix a second number of pixel signals in the image pickup element, which is output from the plurality of light receiving elements in a second area, which is smaller than the first area, of the imaging area, in a case that a second magnification, which is larger than the first magnification, is set by said zoom operation unit, wherein the second number is smaller than the first number.

Claim 18, a method claim that mirrors claim 14, is amended in a similar manner to claim 14 described above. Support for the amendment may be found throughout the specification as

originally filed including, e.g., paragraphs [0102]-[0141] along with Figs. 5A, 5B, 5C and 6 of the corresponding published application (i.e., U.S. Pub. No. 2004/0095485 A1).

One of the goals of the present invention is to provide an imaging apparatus and a controlling method thereof capable of obtaining a sufficient resolution when picture data are expanded by different magnifications. To achieve this goal, the imaging apparatus changes a number of pixels to be mixed in accordance with a magnification set in the imaging apparatus.

As an example, the controller of claim 14 as amended deals with two cases of magnifications, a first magnification and a second magnification larger than the first magnification. In the first magnification, the picture data is output by mixing the signals from three adjacent pixels into a single pixel signal (e.g., Fig. 5A). In the second magnification larger than the first magnification, the picture data is output by mixing the signals from two adjacent pixels which is less than the three pixels as in the first magnification (e.g., Fig. 5B). With the features of the present invention discussed above, an image with a higher resolution can be obtained even in the electronic zoom mode operation.

Hirota discloses a solid-state imaging device that can realize a high-speed imaging without increasing the drive frequency of the imaging device. Applicants note that Hirota discloses two modes of operation of the imaging device, i.e., a normal imaging mode and a high-speed imaging mode. See, e.g., paragraphs [0008] and [0063] of Hirota.

In rejecting claim 14, the Office Action indicates, *inter alia*, that Hirota discloses the controller as recited in the claim and refers to portions of Hirota (i.e., paragraphs [0063], [0077], [0078] and [0084]-[0086]) for the basis of the rejection.¹ It appears that the Examiner equates

¹ Pages 2-3 of the Office Action.

the normal imaging mode and the high-speed imaging mode to the first and second operation modes of claim 14, respectively.

As Applicants understand it, however, Hirota fails to teach the controller of amended claim 14 as discussed above. While Hirota discloses that signal charges from different regions of the vertical CCD are transferred to the horizontal CCD in the normal imaging mode and in the high-speed imaging mode, selection of different regions has nothing to do with the scaling factor. In other words, a determination between the normal imaging mode and the high-speed imaging mode of Hirota is **not** based on the magnification as required by claim 14 as amended. To repeat, Hirota describes:

[0063] In a normal imaging mode, the control gate sections 16 transfer, as they are, all of signal charges supplied from the vertical CCDs 13 line by line to the horizontal CCD 15. On the other hand, in a high-speed imaging mode, among signal charges supplied from the vertical CCDs 13 line by line, the control gate sections 16 transfer signal charges only in the central region to the horizontal CCD 15 while prohibiting signal charges in both end regions in the horizontal direction from being transferred to the horizontal CCD 15. A specific configuration of the control gate sections 16 will be described later in detail.

Furthermore, Hirota reveals that the number of pixels combined together is the same in the normal imaging mode and in the high-speed imaging mode. Hirota describes that “signal charges of two pixels are mixed in the vertical CCDs 13” in both the normal mode and in the high-speed imaging mode. See, e.g., paragraphs [0078] and [0086]. In contrast, the present invention as recited in claim 14 as amended, requires that the number of pixels combined together is different in the first and second magnifications.

Nozaki discloses a camera equipped with a focal point detection device for detecting a focal point adjustment state of a photographic lens. Although Nozaki is cited as disclosing an

optical zoom device,² it fails to teach the inventive aspect of claim (e.g., a controller), i.e., Nozaki is simply silent in this aspect of invention.

Kinugasa is cited as disclosing a zooming operation having a mode of non-mixing of pixels.³ Applicants note that Kinugasa discloses an image pickup apparatus having a first driving circuit of a normal readout operation and a second driving circuit of an electronic zooming operation by utilizing different driving pulse groups. See, e.g., the abstract of Kinugasa. However, as Applicants understand it, Kinugasa also fails to teach the controller as recited in amended claim 14 discussed above, e.g., a controller configured to mix different number of pixels based on the magnifications.

Accordingly, each of amended claim 14 and claim 18 is believed neither anticipated by nor rendered obvious in view of the references cited by the Examiner (i.e., Hirota, Nozaki and Kinugasa), either taken alone or in combination, for at least the reasons discussed above. Reconsideration and withdrawal of the rejections of claims 14 and 18 under 35 U.S.C. §103(a) is respectfully requested.

Applicants have chosen in the interest of expediting prosecution of this patent application to distinguish the cited document from the pending claims as set forth above. However, these statements should not be regarded in any way as admissions that the cited document is, in fact, prior art.

New claims 19 and 20 have been added to recite the claimed invention in an alternative manner. Specifically, each of new claims 19 and 20 depends from amended claims 14 and 18, respectively, and is accordingly believed allowable for at least the similar reasons for claim 14

² Page 3 of the Office Action.

³ Pages 3-4 of the Office Action.

discussed above. Support for the new claims may be found, e.g., paragraph [0127] along with Figs. 5C and 6 of the corresponding published application.

Applicants believe that the application as amended including the new claims is in condition for allowance and such action is respectfully requested.

AUTHORIZATION

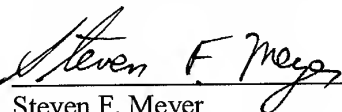
No petitions or additional fees are believed due for this amendment and/or any accompanying submissions. However, to the extent that any additional fees and/or petition is required, including a petition for extension of time, Applicants hereby petition the Commissioner to grant such petition, and hereby authorizes the Commissioner to charge any additional fees, including any fees which may be required for such petition, or credit any overpayment to Deposit Account No. 50-4827 (Order No. 1232-5096). A DUPLICATE COPY OF THIS SHEET IS ENCLOSED.

An early and favorable examination on the merits is respectfully requested.

Respectfully submitted,
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By: _____



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